

Inventory of Soil Resources of East Medinipur district, West Bengal state, Using Remote Sensing and GIS Techniques

ABSTRACT

1.	Survey Area	:	East Medinipur District, West Bengal state
2.	Geographical Extent	:	86 ⁰ 33' 50" to 88 ⁰ 12' 40" E Longitudes and 21 ⁰ 36' 35" to 22 ⁰ 57' 10" N Latitudes
3.	Agro Climatic Region	:	Lower Gangetic Plain (Zone no. IV as per planning commission)
4.	Total area of the district	:	406142 ha.
5.	Kind of Survey	:	Soil resources mapping using remote sensing techniques.
6.	Base map	:	a) IRS – ID Geocoded Satellite Imagery (1: 50000 scale) b) SOI –toposheet (1:50000 scale)
7.	Scale of Mapping	:	1 : 50000
8.	Period of Survey	:	May, 2008

9. Soil Series association mapped and their respective area

Mapping Symbol	Mapping Unit	Soil Association	Area (ha)	Area (%)
01	ALb2a1	Purbjoypur-Srikrishnapur-Buldia	120056	29.56
02	ALb2a2	Srikrishnapur-Purbjoypur-Buldia	90911	22.38
03	ALb2a3	Buldia-Dulalpur-Harishda	136546	33.62
04	ALd3c1	Harishda-Buldia	127	0.03
05	CAb2a1	Tiyakola-Bhupati	7762	1.91
06	CAb2b1	Bhupati-Birampur	3284	0.81
07	CAb3c1	Bhupati-Tiyakola	216	0.05
08	AEa3b1	Jaldha-Jogibar	4247	1.05
09	AEa3c1	Jogibar-Jaldha	643	0.16
10	AEc4e1	Jogibar	3528	0.87
88	Industrial area		1781	0.44
97	Salt Pan		3183	0.78
98	Habitaion		1033	0.25
99	River		32825	8.08
Grand Total			406142	100.0

10. Salient Features:

- ⇒ Total 10 nos soil series have been mapped in East medinipur district
- ⇒ Soils of the districts are very deep
- ⇒ Soil of the district mainly fall under three Landscape and five physiography.

Landscape	Physiography	Area(ha)	%
Aeolian	Longitudinal dunes	4890	1.20
	Stabilized dunes	3528	0.87
Alluvium	Alluvial plain	347513	85.56
	Point bar complex	127	0.03
Coastal Alluvium	Coastal plain	11262	2.77

- ⇒ Soils of the district fall in three slope classes : -
 - Nearly level to very gently sloping- 358559ha(88.28%)
 - Very gently to gently sloping- 5233ha(1.29%)
 - Gently to moderately sloping- 3528ha(0.87%)
- ⇒ Various land use / land cover classes of the district are as under
 - Cultivated land 355275ha (87.48%)
 - Forest 986ha (0.24%)
 - Plantation 7531ha (1.87%)
 - Barren 3528ha(0.85%)
- ⇒ Soils of the area are taxonomically classified into three orders i.e. Alfisols, Entisols, and Inceptisols. All the ten soils series identified in the area are further classified into 6 sub-orders, 6 great groups, 8 subgroups and 10 families.
- ⇒ Soils of the districts have four erosion classes

➤ None to slight water erosion	355275 ha	87.48%
➤ Slight to Moderate erosion	127 ha	0.03%
➤ Moderate erosion	11918ha	2.93%
- ⇒ Soils under different Land Capability classes

➤ II	358902 ha	88.37 %
➤ IV	8414 ha	2.07 %

The data indicate that soils have good potential for agricultural production. The soil health management is key for sustainable agriculture development.

HOW TO USE SOIL RESOURCE MAPPING REPORT

This report embodies the results of the Soil Resources mapping of East Medinipur district, West Bengal providing information on the geographical setting of the district, such as location, extent, physiography, relief, drainage, climate, geology, natural vegetation, agriculture, land use and soils.

The report contains other information on Interpretative grouping of soils(Chapter 7) such as land capability classes; land irrigability classes, soil suitability grouping and hydrological grouping and also recommendation for crops; horticulture development; forest, forage and grassland development; water harvesting, water storage and water management that are essential for soil and land resource management. The genesis and classification of the soils are also discussed in **Chapter 5**.

East Medinipur district of West Bengal is spreaded over an area of 406142 ha. The district is covered by twelve SOI topographical sheets on the scale of 1: 50,000 which are used as base material along with satellite imageries.

Each soil mapping unit is marked by mapping unit i.e. AEa3b1 (Aeolian; longitudinal dunes; 3-5 % slope; plantation land use; Soil Series Association describing Jogibar as dominant series in association with Jaldha series). Each soil association is restricted to a maximum of three soil series.

For the use of the soil resource report, first locate the area of your interest on the map and note down the soil mapping units. Permanent features such as road, stream, lakes and village habitation etc. shown on the map, help to locate the area of interest on the map. For the detailed information on soil mapping unit in respect of soil series of the area of interest, its extent, present and proposed land uses, reference may be made to **Chapter 4, appendix I and II**.

The mapping unit used in soil mapping represents the five levels of mapping i.e. ALb1a1 may be referred as follows:

AE	-	Aeolian	-	Landscape
a	-	Longitudinal dunes	-	Physiography
3	-	3-5 %	-	Slope Class
b	-	Plantation	-	Land Use
1	-	Association of Soil series with erosion and management soil unit.		

Any comment and suggestion on the report would be welcome. For any further enquiry / or clarification, correspondence or personal contact may be established, with the **Chief Soil Survey Officer**, Soil and Land Use Survey of India, IARI Buildings, Pusa, New Delhi – 110012, email csso-slusi@nic.in. Or **Soil Survey Officer**, Soil and Land Use Survey of India, Baishnabghata-Patuli township, Block-E, Kolkata, Pin-700094, email- ssokolkata-slusi@nic.in. Website:<http://www.slusi.dacnet.nic.in>